UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/849,002	05/04/2001	David J. Leach, JR.	INSL0037	8971

26122	7590	09/22/2004	

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EXAMINER
WILSON, ROBERT W

ART UNIT	PAPER NUMBER
2661	

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO 90C (Rev 10/03)

	Office Action Summary	**Application No.** 09/849,002	**Applicant(s)** LEACH, ET AL.
		Examiner Robert W Wilson	**Art Unit** 2661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _04 May 2001_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-39_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _1-21 and 31-39_ is/are allowed.

6)☒ Claim(s) _1,5,22,24-26 and 28_ is/are rejected.

7)☒ Claim(s) _2-4, 6-10, 23,27,29 and 30_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _04 May 2001_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _2/19/03 & 6/17/03_.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.0   The application of Leach et. al. entitled SYSTEM AND METHOD OF REPETITIVE

TRANSMISSION OF FRAMES FOR FRAME-BASED COMMUNICATIONS filed on 5/4/01

and claiming priority based upon 60/261,436 dated 1/11/01 was examined. Claims 1-39 are

pending. The applicant should be advised that not all of IDS documents were reviewed by the

examiner because they were non patent literature which was not part of the case. The applicant

is requested to resubmit or submit these documents if they desire for them to be considered.

Please refer to the 1449s for more details.

Claim Rejections - 35 USC § 103

2.0   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

3.0   Claims 1& 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yao et. al.

(U.S. Patent No.: 6,400,724 B1).

Referring to **Claim 1,** Yao teaches: A method of repetitive transmission of frames by a MAC
entity in a communication system ("MAC entity" was not further defined in the limitations
consequently the examiner interpreted "MAC entity" as intended use; therefore, "MAC entity"
was given no weight. Figure 2 is shows a method of retransmitting frames when a NAK is
received per col. 11 lines 4-col. 12 line 39)

Accepting frames intended for transmission (The PROCESSOR 210 per Fig 2 accepts frames for
intended transmission)

Enqueuing the accepted frames into a queue (The PROCESSOR 210 inserts the frames into the
TRANSMIT QUEUE 212 per Fig 2)

Dequeuing a frame from the queue (The frame is removed from the TRANSMIT QUEUE 212 per Fig 2 upon being sent for modulation and eventually to transmission or col. 11 line 4- col. 12 line 39)

Transmitting the dequeued frame (The DIGITAL MODULATOR 216 provides the modulated frame to the RF TRANSMITTER 218 per Fig 2 for transmission or per col. 11 line 4-col. 12 line 39)

Re-enqueuing the frame into the queue if the frame is a persistent frame (The applicant broadly claims "persistent frame". The applicant defines a "persistent frame" as a frame that is effected by retry strategy per Pg 31 lines 10-16 of the specification. The examiner interprets a frame that needs to be retransmitted or effected by retry strategy as a "persistent frame". Upon receipt of a NAK a copy of the transmitted frame is moved from the SECONDARY QUEUE 214 to the TRANSMIT QUEUE 212 per Fig 2 for transmission or re-enqueueing)

Yao does not expressly call for: a persistent frame but queuing of frames that may need to be retransmitted.

It would have been obvious to one of ordinary skill in the art at the time of the invention that a frame that may require retransmission performs the same function as a persistent frame.

In Addition Yao teaches:

Regarding **Claim 5**, further comprising: said enqueueing comprising enqueuing the accepted frames into a persistent queue (The PROCESSOR 210 inserts copies of the frame being transmitted into the SECONDARY QUEUE 214 per Fig 2 or per col. 11 line 4-col. 12 line 39 or enqueueing)

Said re-enqueuing comprising re-enqueuing the accept frames into a persistent queue (When a NAK is received then the frames are moved to the TRANSMIT QUEUE and a copy remains in the SECONDARY QUEUE 214 per Fig 2 until after a given time interval they are erased from the SECONDARY QUEUE 214 per Fig 2 or until a NAK is received)

Claim Rejections - 35 USC § 103

4.0   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.0 **Claims 22, 24-26, and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Davidson et. al. (U.S. Patent No.: 6,754,197 B1).

Referring to **Claim 22,** Davidson teaches: A MAC device that supports persistent frame transmission (The applicant has broadly claimed "persistent frame transmission". The applicant defines a "persistent frame transmission" as a frame that is effected by retry strategy per Pg 31 lines 10-16 of the specification. The examiner interprets a frame that is being retransmitted because an ACK has not been received as a "persistent frame transmission". The AP 320 per Fig 3 which is shown in more detail per Fig 5 conforms with IEEE 802.11 per col. 3 line 66-col. 4 line 9 or MAC device which supports retransmission until a packet has been retransmitted until an ACK has been received by setting ClearDestMask=0. The examiner has interpreted ClearDestMask=1 as a persistent frame or frame that needs to be transmitted or retransmitted.)

A queue that stores frames for transmission (500 per Fig 5 has a transmission Queue per col. 5 lines 51-52 in the memory 520 per Fig 5)

A transmission scheduler, coupled to the queue, that dequeues frames from the queue for transmission (HSU 530 per Fig 5 is a scheduler per col. 5 line 17-col. 10 line 29 that queues and dequeue frames for retransmission by setting ClearDestMask=0 means not to be retransmitted or by setting ClearDestMaskN=1 or transmitted. The scheduler 530 is coupled to the memory 520 per Fig 5 or queue)

Persistent logic, coupled to the transmission scheduler, that detects and dequeued frame is persistent and that asserts a persistent signal indicative (The device driver determines whether transmission has been acknowledged or not acknowledged and thereby sets ClearDestMask or persistent signal indicator per col. 10 lines 4-29. It is within the level of one skilled in the art to implement software driver functions as logic.)

The transmission scheduler, receiving the persistent signal, being configured to forward the frame to be re-enqueue into the queue (The examiner has interpreted the persistent signal to be ClearDestMask=1 or transmit. The HSU or scheduler retransmits the frame when ClearDestMask=1 until the frame has been acknowledged in which case the ClearDestMask is set to zero and the frame is dequeue per col. 10 lines 4-30)

Davidson does not expressly call for: persistent frame but teaches setting ClearDestMask=1 on a frame that needs to be transmitted or retransmitted as a persistent frame.

It would have been obvious to one of ordinary skill in the art at the time of the invention that setting ClearDestMask=1 when a frame is to be transmitted or retried performs the same function as a persistent signal.

In Addition Davidson teaches:

Regarding **Claim 24**, further comprising: the queue comprising a persistent queue (Queue of frame that are to be transmitted when ClearDestMask=1 per col. 10 lines 4-30) and persistent logic detecting the dequeued frame as persistent by detecting that the queue is a persistent queue (The driver associated with the persistent queue knows whether the frame is persistent because it has a ClearDestMask assigned and knows that it is to be dequeue when ClearDestMask=0 per col. 10 lines 1-31)

Regarding **Claim 25**, wherein the persistent logic detects that dequeue frame is a persistent frame type (The driver or persistent logic detects the dequeue frame because ClearDestMask=0)

Regarding **Claim 26**, the queue further storing frame descriptors (ClearDestMask or descriptor per col. 10 lines 1-30), each for a corresponding frame; the transmission scheduler dequeueing a frame descriptor for each dequeue frames (ClearDestMask is stored for each frame and when ClearDestMask=0 then the frame is dequeue per col. 10 lines 1-30); and the persistent logic configured to detect a persistent mark in frame descriptors (The driver or persistent logic is configured to detect and set ClearDestMark or frame descriptor per col. 10 lines 1-30) .

Regarding **Claim 28**, further comprising: the queue further storing a persistent mark bit (The queue stores ClearDestMark or persistent mark per col. 10 lines 1-30) and the persistent logic configured to detect persistent mark bits of the queue for each frame (The driver or logic detects the ClearDestMark associated with each frame per col. 10 lines 1-30)

Claim Objections

5.0   **Claims 2-4, 6-9, 23 & 27, & 29-30** are objected to as being dependent upon a rejected

base claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

The invention is directed to a method of repetitive transmission of a frames wherein frames have a persistent mark frame descriptor that identifies the frame as persistent, a transmit control descriptor, a frame type indicator, a persistent mark indicator, ability to send a command to clear the persistent mark indication, method of remarking a frame as persistent as well as re-enqueueing the frame.

The closest prior art is Yao (U.S. Patent No.; 6,400,724 B1) which teaches that frames kept frame of via sequence numbers; consequently, **Claims 2-4 & 6-9** would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The invention is directed to a queue that is a FIFO and has a Frame manager in addition to a schedule for managing the queue.

The closest prior art Davidson (U.S. Patent No.; 6,754,197 B1) teaches a scheduler but fails to disclose a FIFO queue or a frame manager in addition to the scheduler or a transmit control field of each frame as a descriptor consequently **Claims 23, 27, & 29-30** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Objections

6.0   **Claim 10** is objected to because of the following informalities: The examiner objects to

the usage of the word "suppressing". The examiner believes the applicant means "suppress".

Appropriate correction is required.

Allowable Subject Matter

7.0   The applicant's invention is directed to a method of repetitive transmission of frames by a MAC entity in a communication system comprising: accepting frames, enqueueing accepted frames, transmitting the dequeued frame and reenqueueing the frame if the frame is a persistent frame.

The closest prior art is Yao (U.S. Patent No.; 6,400,724 B1) which teaches accepting frames, enqueueing accepted frames, transmitting the dequeued frame and reenqueueing the frame if the frame is a persistent frame but does not teach that these functions are performed by a MAC entity nor does Yao disclose a variable timing interface.

The closest prior art is Yao (U.S. Patent No.; 6,400,724 B1) does not disclose, anticipate, or render the following claim limitations obvious:

"sending by the scheduling entity, the persistent frame to the MAC entity via the variable timing interface; dequeueing, by the MAC entity, the persistent frame into a queue; dequeuing, by the MAC entitity, the persistent frame from the queue; transmitting, by the MAC entitiy, the persistent frame, and re-enqueuing, by the MAC entity, the persistent frame back into the queue" as claimed in **Claim 11.**

In Addition:

Claims 12-21 are allowed because they depend upon **Claim 11**.

8.0   The applicant's invention is directed to a system which has a scheduling entity which identifies frames as persistent and is coupled to a transceiver in which the queue is coupled to a frame manager and coupled to a transmission scheduler.

The closest prior art is Davidson et. al. (U.S. Patent No.: 6,754,197) which teaches an Access point which has an HSU or scheduling entity per Fig 5. The HSU identifies if the packet needs to be retried or persistent frame by setting ClearDestMask per col. 10 lines 1-31 but fails to disclose the structure within the transceiver

The closest prior art Davidson et. al. (U.S. Patent No.: 6,754,197) does not disclose, anticipate, or render the following claim limitations obvious:

"a transceiver, coupled to the scheduling entity, comprising: a queue; a frame manager, coupled to the queue and the scheduling entity, that receives and enqueues forwarded frames, and a transmission scheduler, coupled to the queue and the frame manager, that dequeues and transmits frames from the queue and that forwards persistent frames back to the frame manager as claimed in **Claim 31.**

In Addition:

Claims 32-36 are allowed because they depend upon Claim 31.
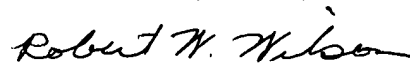
Conclusion

9.0   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Robert W Wilson whose telephone number is 571/272-3075. The

examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kenneth Vanderpuye can be reached on 571/272-3078. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Robert W Wilson
Examiner
Art Unit 2661

RWW
September 16, 2004

KENNETH VANDERPUYE
PRIMARY EXAMINER